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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/767,082	01/29/2004	Sang-Boh Yun	678-1283	4590
66547 7590 08/21/2007 THE FARRELL LAW FIRM, P.C. 333 EARLE OVINGTON BOULEVARD SUITE 701 UNIONDALE, NY 11553			EXAMINER BRANDT, CHRISTOPHER M	
			ART UNIT 2617	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/767,082

Applicant(s)

YUN ET AL.

Examiner

Christopher M. Brandt

Art Unit

2617

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 10 May 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-36 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 January 2004 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |                                                                                      |                                                                   |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date. _____                                                         | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Response to Amendment***

This Action is in response to Applicant's amendment filed on May 10, 2007. **Claims 1-36** are pending in the present application. **This Action is made FINAL.**

### ***Response to Arguments***

Applicant's arguments filed May 10, 2007 have been fully considered but they are not persuasive.

With regards to applicant's argument regarding to claim 1, the examiner disagrees. First of all, the applicant's argue (starting on the last line of page 10 and continuing on page 11) that "claim 1 is directed to a mobile station analyzing a duplexing mode determination factor...". However, claim 1 recites nothing of "analyzing" and furthermore, even if claim 1 did recite "analyzing" Philip does disclose the limitation because he determines the characteristics of the service being requested such as any asymmetry expected between uplink and downlink communication etc. Therefore, Philip does disclose "analyzing a duplexing mode determination factor..." because communication in both directions is a duplex service (page 1 lines 13-15). In addition, with regards to applicant's request to point to the exact passage of Philip teaching this dual mode set-up, the examiner refers applicant's to page 10 lines 18-31, where Philip discloses that the base station assigns the available duplexing scheme (TDD or FDD) based on an analysis. In addition, Philip also discloses that the TDD scheme comprises a band of frequencies allocated to the TDD scheme, and from the allocated band of frequencies, a single frequency is allocated to a given mobile terminal for both uplink and downlink communications. Moreover, the FDD scheme comprises an uplink band of frequencies and a downlink band of frequencies allocated to

the FDD scheme. Therefore, Philip discloses the setting-up or assigning of the dual mode for the reverse link or uplink and the forward link or downlink. With regards to applicant's argument that Philip does not disclose transmitting/receiving, by a mobile station and a base station, a duplexing mode determination factor during call setup and further, the base station receives the duplexing mode determination factor and then sets the mode, the examiner disagrees. Philip discloses that the cellular telephone transmits the characteristics of the service requested (duplexing mode determination factor) the circumstances of the cellular telephone and the request for service to the base station, where the base station receives the request and assigns the TDD or FDD scheme (page 10 lines 13-15, lines 22-24). Therefore, Philip does disclose transmitting/receiving, by a mobile station and a base station, a duplexing mode determination factor during call setup and that the base station receives the duplexing mode determination factor and then sets the mode. With regards to applicant's argument regarding inherency pertaining to claims 24 and 25, the examiner directs applicants to the rejection of claim 1. Philip discloses the functionality of the mobile station and the base station, therefore, Philips reads upon claims 24 and 25 as well. As a result, the argued features are written such that they read upon the cited reference.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

**Claim 27** is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described

Art Unit: 2617

in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

**Claim 27** recites that the TDD bandwidth is greater than the FDD bandwidth. After rereading the entire specification, the examiner notes that “bandwidth” is not even mentioned in the specification, not to mention that “the TDD bandwidth is greater than the FDD bandwidth”.

Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**Claims 1-7, 10-12, 15-26, 28-30, 32-33, 35-36** are rejected under 35 USC 102(b) as being anticipated by **Philip et al. (WO 00/05912, hereinafter Philip)**.

Consider **claim 1 (and similarly applied to claims 24 and 25)**. Philip discloses a wireless communication system for providing a service in a time division duplexing (TDD) mode and a frequency division duplexing (FDD) mode (abstract, page 1 lines 34-36), the system comprising:

a mobile station for, during call setup, transmitting a duplexing mode determination factor to a base station, setting a TDD mode or an FDD mode as a reverses mode set by the base station, and setting up a channel for the set reverse mode and a forward channel to perform communication (figures 1 and 8, page 9 line 36 – page 10 line 7, read as a cellular phone

determines the communication characteristics that it requires and based on those characteristics the base station sets a TDD or an FDD mode for communications); and

a base station for, during call setup, receiving the duplexing mode determination factor from the mobile station, setting a reverse mode to the TDD mode or the FDD mode using the received duplexing mode determination factor, and setting up a reverse channel for the set mode and a TDD mode for forward transmission to communication with the mobile station (figures 1 and 8, page 9 line 36 – page 10 line 7, lines 9-16, page 10 line 33 – page 11 line 7, read as a cellular phone determines the communication characteristics that it requires and based on those characteristics the base station sets a TDD or an FDD mode for communications, where the base station receives the request for service from the cellular phone).

Consider **claim 12**. Philip discloses a call control method in a base station for a wireless communication system, the base station being capable of communicating with a mobile station in a time division duplexing (TDD) mode and a frequency division duplexing (FDD) mode (abstract, page 1 lines 34-46), the method comprising the steps of:

during call assignment to the mobile station, analyzing a duplexing mode determination factor received from the mobile station to determine whether the mobile station is located in a close area with respect to the base station (figures 1 and 8, page 9 lines 26-34, page 9 line 36 – page 10 line 7, page 11 line 35 – page 12 line 3, read as during a call assignment to the base station determines position of mobile station from communication with the cellular phone); and

assigning a TDD channel to a forward link and a reverse link if the mobile station is located in the close area, and assigning a TDD channel to the forward link and an FDD channel to the reverse link to perform communication if the mobile station is located in a remote area

with respect to the base station (figures 1 and 8, page 9 lines 26-34, page 9 line 36 – page 10 line 7, page 11 lines 35 – page 12 line 3, read as the most appropriate duplexing scheme and the most appropriate macro or micro cell).

Consider **claim 17**. Philip discloses a call control method in a mobile station for a mobile communication system providing a time division duplexing (TDD) mode and a frequency division duplexing (FDD) mode (abstract, page 1 lines 34-36), the method comprising the steps of:

generating a duplexing mode determination factor and reporting the generated duplexing mode determination factor to a base station when assignment of a call is necessary communication (figures 1 and 8, page 9 line 36 – page 10 line 7, read as a cellular phone determines the communication characteristics that it requires and based on those characteristics the base station sets a TDD or an FDD mode for communications);

setting transmission and reception modes based on the received mode upon receiving a mode for a reverse link from the base station (station (figures 1 and 8, page 9 line 36 – page 10 line 7, lines 9-16, page 10 line 33 – page 11 line 7, read as a cellular phone determines the communication characteristics that it requires and based on those characteristics the base station sets a TDD or an FDD mode for communications, where the base station receives the request for service from the cellular phone);

sending a channel assignment request to the base station to perform communication with a channel assigned during channel assignment (figures 1 and 8, page 9 lines 26-34, page 9 line 36 – page 10 line 7, page 11 line 35 – page 12 line 3, read as the base station receives the request

for service based on the cellular phone's determination of the characteristics and then the base station sets a TDD or an FDD mode for communications).

Consider **claim 2 and as applied to claim 1**. Philip discloses wherein the mobile station generates the duplexing mode determination factor and reports the generated duplexing mode determination factor to the base station during predetermined periods in an active state (figures 1 and 8, page 9 line 36 – page 10 line 7, page 13 lines 5-10).

Consider **claim 3 and as applied to claim 1**. Philip discloses wherein the base station determines whether switching of a reverse mode of the mobile station is required each time a duplexing mode determination factor is received from the mobile station in the active state, and controls switching of the set mode and assigns a new channel to the mobile station to perform communication when mode switching is required (figure 8 page 9 lines 26-34, page 9 line 36 – page 10 line 15).

Consider **claims 4 and 20 and as applied to claims 1 and 17, respectively**. Philip discloses wherein the duplexing mode determination factor includes at least one of power of a pilot signal received from the base station and geographical position information of the mobile station ((figure 8 page 9 lines 26-34, page 9 line 36 – page 10 line 15).

Consider **claim 6, 7, and 19 and as applied to claims 4, 5, and 18, respectively**. Philip discloses wherein the duplexing mode determination factor is transmitted over a dedicated control channel for the set mode (figures 8, page 9 lines 26-34, page 9 line 36 – page 10 line 15).

Consider **claims 10 and 15 and as applied to claims 9 and 14, respectively**. Philip discloses wherein channels for the forward link are assigned time slots beginning at a time slot in

Art Unit: 2617

an area close to the guard time in order of mobile station nearest to the base station according to a position of the mobile station, detected from the duplexing mode determination factor (figures 1 and 8, page 9 line 36 – page 10 line 7, lines 9-16, page 10 line 33 – page 11 line 7).

Consider **claim 11 and as applied to claim 9**. Phillip discloses wherein channels for the reverse link for the TDD mode are assigned time slots beginning at a time slot in an area close to the guard time in order of mobile station nearest to the base station according to a position of the mobile station, detected from the duplexing mode determination factor (figures 6 and 7, page 9 line 36 – page 10 line 7, lines 9-16, page 10 line 33 – page 11 line 7).

Consider **claim 16 and as applied to claim 12**. Phillip discloses checking again a position of the mobile station to determine whether the mobile station is located in the close area or the remote area upon receiving a duplexing mode determination factor from the mobile station during communication with the mobile station; and determining whether mode switching is required according to the checked position of the mobile station, and assigning a mode switching message and a new channel to perform communication if mode switching is necessary (page 13 lines 5-10).

Consider **claim 18 and as applied to claim 17**. Phillip discloses generating information obtained using the duplexing mode determination factor and reporting the generated information to the base station during predetermined periods during communication; and performing mode switching and performing communication with the new channel if a reverse mode switching request is received from the base station and a new channel is assigned by the base station (figure 8, page 9 lines 26-34, page 9 lines 36 – page 10 line 15).

Consider **claim 23 and as applied to claim 18**. Philip discloses wherein the information obtained using the duplexing mode determination factor comprises power of a pilot signal received from the base station and geographical position information of the mobile station (page 9 lines 26-34, page 9 line 36 – page 10 line 15).

Consider **claim 26 (and similarly applied to claim 35)**. Philip discloses a method for allocating resources in a wireless communication system, the wireless communications system including a plurality of mobile stations, and a base station for allocating and communicating with the mobile stations, the method (abstract, page 1 lines 34-36) comprising the steps of:

dividing, by the base station, a system bandwidth into a different time division duplexing (TDD) bandwidth and a different frequency division duplexing (FDD) bandwidth (page 9 lines 2-5, read as the range of bandwidths can be subdivided into more than three portions, the portions being allocated for FDD uplink/downlink transmissions and TDD communications);

receiving a mode determination factor from the mobile station (figures 1 and 8, page 9 line 36 – page 10 line 7 lines 9-16, page 10 line 33 – page 11 line 7, read as the base station receives the request for service based on characteristics determined by the mobile station); and

allocating at least one of TDD bandwidth and FDD bandwidth according to the mode determination factor (page 10 lines 18 – 31, read as the base station receives the request and assigns the TDD or FDD scheme).

Consider **claim 28 and as applied to claim 26**. Philip discloses wherein the TDD bandwidth includes at least one of downlink and uplink resources (page 9 lines 2-5).

Consider **claim 29 and as applied to claim 28**. Philip discloses wherein the FDD bandwidth includes uplink resources (page 9 lines 2-5).

Consider **claim 30 and as applied to claim 29**. Philip discloses wherein the allocating step comprises: comparing the mode determination factor with a predetermined threshold; allocating uplink and downlink resources of the TDD bandwidth if the mode determination factor is less than the predetermined threshold; and allocating uplink resources of FDD bandwidth if the mode determination factor is greater than or equal to the predetermined threshold (page 10 line 33 – page 11 line 7).

Consider **claim 32 and as applied to claim 30**. Philip discloses wherein the mode determination factor is geographical position information of the mobile station (page 10 lines 9-12).

Consider **claim 33 and as applied to claim 30** Philip discloses wherein the mode determination factor is moving velocity of a mobile station (page 10 lines 9-12).

Consider **claim 36 and as applied to claim 35**. Philip discloses the apparatus wherein the encoding processor comprises: an FDD decoder for processing the received FDD signal and sending the processed FDD signal to the transmission/reception separator; a TDD decoder for processing the received TDD signal and sending the processed TDD signal to the transmission/reception separator; and a TDD encoder for processing the TDD bandwidth signal, and transmitting the processed signal to the transmitting and received separator (figures 1 and 8, page 9 lines 2-5, page 9 line 36 – page 10 line 7 lines 9-16, page 10 line 33 – page 11 line 7).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

**Claims 8, 9, 13, and 14** are rejected under 35 USC 103(a) as being unpatentable over **Philip et al. (WO 00/05912)** in view of **John et al. (GB 2398455, John)**.

Consider **claims 8 and 13** and as applied to **claims 1 and 12, respectively**. Philip discloses the claimed invention except wherein the base station assigns a frequency resource in a predetermined area among frequency resources available in the base station as reverse link resources for reverse transmission, and assigns the remaining available frequency resources to a forward link and a reverse link in a TDD mode.

However, John discloses wherein the base station assigns a frequency resource in a predetermined area among frequency resources available in the base station as reverse link resources for reverse transmission, and assigns the remaining available frequency resources to a forward link and a reverse link in a TDD mode (figures 2 and 3, page 4 lines 20-30, page 5 lines 21-29, page 6 line 26 – page 7 line 3).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated the teachings of John into the teachings of Philip in order to enhance the performance of a mobile station in a micro cell and macro cell by increasing uplink and downlink capacity (abstract).

Consider **claims 9 and 14 and as applied to claims 8 and 13, respectively**. Philip and John disclose wherein in the TDD mode, the forward link and the reverse link have a predetermined time period, and the period includes a guard time of a predetermined time between switching times of the forward link and the reverse link (figures 6 and 7, page 9 lines 22-25).

**Claims 31 and 34** are rejected under 35 USC 103(a) as being unpatentable over **Philip et al. (WO 00/05912)** in view of **Samuels et al. (US PG PUB 2003/0003882 A1, hereinafter Samuels)**.

Consider **claim 27 and as applied to claim 26**. Philip discloses the claimed invention but fails to teach wherein the TDD bandwidth is greater than the FDD bandwidth (page 9 lines 7-20).

However, Samuels discloses wherein the TDD bandwidth is greater than the FDD bandwidth (paragraph 2).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated the teachings of Samuels into the invention of Philip in order to have more timeslots allocated to the downlink, as a user is receiving more data than he is sending (paragraph 2).

**Claims 31 and 34** are rejected under 35 USC 103(a) as being unpatentable over **Philip et al. (WO 00/05912)** in view of **Uebayashi et al. (EP 1 168 878 A2, hereinafter Uebayashi)**.

Consider **claim 31 and as applied to claim 30**. Philip discloses the claimed invention but fails to teach wherein the mode determination factor is a pilot signal strength, which at least one mobile station (MS) receives from the base station.

However, Uebayashi discloses wherein the mode determination factor is a pilot signal strength, which at least one mobile station (MS) receives from the base station (paragraph 83, read as the switching operation may be performed on the basis of reception power of a forward common channel by a mobile station).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated the teachings of Uebayashi into the invention of Philip in order to switch from the CDMA-TDD to the CDMA-FDD (or visa-versa, if there is traffic or interference (paragraphs 84 and 84)).

Consider **claim 34 and as applied to claim 30**. Philip discloses the claimed invention but fails to disclose wherein the mode determination factor is determined at least to be one of a pilot signal strength, which at least one MS receives from the base station, and the moving velocity of the mobile station.

However, Uebayashi discloses wherein the mode determination factor is determined at least to be one of a pilot signal strength, which at least one MS receives from the base station, and the moving velocity of the mobile station (paragraph 83, read as the switching operation may be performed on the basis of reception power of a forward common channel by a mobile station).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated the teachings of Uebayashi into the invention of Philip in order to switch from the CDMA-TDD to the CDMA-FDD (or vis-versa, if there is traffic or interference (paragraphs 84 and 84).

*Conclusion*

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any response to this Office Action should be **faxed to (571) 273-8300 or mailed to:**

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher M. Brandt whose telephone number is (571) 270-1098. The examiner can normally be reached on 7:30a.m. to 5p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nick Corsaro can be reached on (571) 272-7876. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Art Unit: 2617

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist/customer service whose telephone number is (571) 272-2600.



Christopher M. Brandt

C.M.B./cmb

August 4, 2007



**WILLIAM TROST**  
**SUPERVISORY PATENT EXAMINER**  
**TECHNOLOGY CENTER 2600**